

### REMARKS

Applicants have amended claims 1, 6, 17, 23, and 28. Accordingly, claims 1-33 are presented.

#### Objections

The Examiner objected to the disclosure due to informalities. The informalities have been corrected [see "Amendments to the Specification"] and Applicants ask that the objection be withdrawn.

#### 35 U.S.C. § 101

The Examiner rejected claims 1-11 under 35 U.S.C. § 101 as allegedly not falling under one of the four statutory categories of invention. Applicants have amended independent claims 1 and 6 so as to obviate the rejection and ask that the rejection be withdrawn.

#### 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 12, 13, 23, and 24 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,885,442 ("Nugent").

Claim 1 recites "[a] computer-implemented method of determining the area or confluency of a sample, comprising... determining... the boundary of the sample from...quantitative phase data... and determining.. the area within the boundary in order to determine either the area or the confluency of the sample."

The Examiner contends, regarding the foregoing claims:

**Nugent discloses a method, apparatus and computer program for determining the area or confluency of a sample, comprising: providing quantitative phase data relating to the sample and background surrounding the sample (Col. 16, In 48 - Col. 17, In 7); determining from the quantitative phase data the boundary of the sample (Col. 18, In 33-43); and determining the area within the boundary in order to determine either the area of the**

**sample or the confluency of the sample (Col. 18, In 6-9: tomographic plane image; See also Fig. 12).<sup>1</sup>**

However, Nugent neither describes nor suggests determining the boundary of a sample from quantitative phase data, or determining the area within the boundary in order to determine either the area or the confluency of the sample, as recited in claim 1. Indeed, Applicants have been unable to determine where, if anywhere, Nugent refers to determining the area or confluency of a sample by the technique as outlined in claim 1, or any other technique.

Rather, in the portions of Nugent cited by the Examiner, Nugent outlines a measured and computed refractive index profile of a fiber<sup>2</sup> without specifying how a boundary of such a fiber would be determined, and Nugent does not describe how an area of a sample is determined given such a boundary.

It is submitted, therefore, that claim 1 and claims depending therefrom are novel over Nugent. Claims 12 and 23 include features comparable to those of claim 1, so it is submitted that 12 and 23 and claims depending therefrom are also novel over Nugent. Accordingly, Applicants ask the rejection be withdrawn.

### 35 U.S.C. § 103

The Examiner rejected claims 6-8, 10, 11, 17-19, 21, 22, 28-30 32, and 33 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Nugent in view of “Fully Automatic Determination of Soil Bacterium Numbers, Cell Volumes, and Frequencies of Dividing Cells by Confocal Laser Scanning Microscopy and Image Analysis”, *Applied and Environmental Microbiology*, Mar. 1995, pp. 926–936 (“Bloem”).

Claim 6 recites “[a] computer-implemented method of determining the area or confluency of a sample comprising... determining...a boundary of the sample from individual phase data values applicable to pixels of the detector which are either above or below a determined pixel value...”

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<sup>1</sup> Office Action, Mail Date June 2, 2009, Page 4

<sup>2</sup> Nugent, Column 17, Line 12 – Column 18, Line 42

The Examiner contends that Nugent discloses all the features of claim 6 except determining the area or confluency by multiplying the pixel area by the number of pixels which are either above or below the determined pixel value to thereby determine the area or confluency of the sample.<sup>3</sup> However, Nugent neither describes nor renders obvious determining a boundary of the sample from individual phase data values applicable to pixels of the detector which are either above or below a determined pixel value, as recited in claim 6. As discussed above, nowhere does Nugent describe a prescription for determining a boundary from phase data. Bloem, introduced by the Examiner to cover the foregoing feature that the Examiner describes as not explicitly disclosed by Nugent, fails to remedy the deficiencies of Nugent.

Nugent and Bloem, alone or in combination, neither describe nor render obvious “determining...a boundary of the sample from individual phase data values applicable to pixels of the detector which are either above or below a determined pixel value,” as recited in claim 6. It is submitted, therefore, that claim 6 and claims depending therefrom are patentable over Nugent in view of Bloem. Claims 17 and 28 have similar features to claim 6, and claims depending therefrom are also patentable over Nugent in view of Bloem. Accordingly, Applicants ask the rejection be withdrawn.

The Examiner rejected claims 3-5, 9, 14-16, 20, 25-27, and 31 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Nugent in view of Bloem and further in view of U.S. Patent Application No. 2003/0190067 (“Tsuji”).

Claims 3-5, 9, 14-16, 20, 25-27, and 31, however, depend from claims 1, 6, 12, 17, 23, and/or 28, which, as discussed above, are neither anticipated by Nugent nor unpatentable over Nugent in view of Bloem. Tsuji was introduced by the Examiner to cover the feature of determining a line of best fit on the derivative to obtain a data value applicable to the boundary so that data values either above or below the determined data value are deemed within the sample. Tsuji, however, fails to remedy the deficiencies of Nugent and Bloem in that Tsuji fails to describe or render obvious determining from the quantitative phase data the boundary of the

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sample, and determining the area within the boundary in order to determine either the area of the sample or the confluency of the sample, as recited in claim 1. Tsuji further fails to describe or suggest determining a boundary of the sample from individual phase data values applicable to pixels of the detector which are either above or below a determined pixel value, as recited in claim 6.

Nugent, Bloem, and Tsuji, alone or in combination, neither describe nor render obvious “[a] computer-implemented method of determining the area or confluency of a sample, comprising... determining... the boundary of the sample from...quantitative phase data... and determining.. the area within the boundary in order to determine either the area or the confluency of the sample,” as recited in claim 1, and “determining...a boundary of the sample from individual phase data values applicable to pixels of the detector which are either above or below a determined pixel value,” as recited in claim 6. It is submitted, therefore, that the foregoing claims, which depend from claims 1, 6, 12, 17, 23, and/or 28, are patentable over Nugent in view of Bloem and further in view of Tsuji. Accordingly, Applicants ask the rejection be withdrawn.

### Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

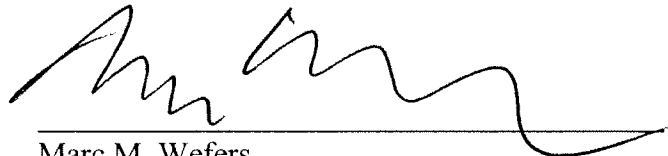
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The required fee for the extension of time in the amount of \$555 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any additional charges or credits to Deposit Account No. 06-1050, referencing Docket No. 20498-0002US1. Please apply any other charges or credits to deposit account 06-1050, referencing Docket No. 20498-0002US1.

Respectfully submitted,

Date: 11/16/09

A handwritten signature in black ink, appearing to read 'Marc M. Wefers', written over a horizontal line.

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